comparing the determined value of the property of the target material in said regions to a known value of said property of the given material,

registering locations of regions in the ensemble in which said comparison results in substantial agreement of said value of the property of said target material with the value of the property of said given material,

and in response thereto, in a visual display of the image of said ensemble, highlighting locations in the image based on said comparison agreements, thereby indicating to an operator viewing said display the locations of possible presence of said given material.

58. The method of claim 57 wherein a target region is determined on the basis of the steepness of the gradient of change of the value of said property adjacent the target region.

59. The method of claim 57 wherein in the visual display edges corresponding to detected edges of the given material are highlighted along with adjacent areas having similar characteristics to fill in along the detected edges.

~~60. The method of claim 57 wherein said determinations are performed by computer analysis.~~

61. The method of claim 60 wherein said computer analysis employs, effectively, a predetermined lookup table based

on actual measurements performed on said given material under varying conditions.

62. The method of claim 61 wherein said varying conditions comprise variations in thickness of said given material.

63. The method of claim 57 wherein said display is a video monitor.

64. The method of claim 57 wherein said step of exposing comprises employing at least one fan beam of x-ray radiation.

65. The method of claim 57 wherein said ensemble comprises an article of luggage or a similar article capable of being transported by common carrier and said step of exposing comprises employing at least one fan beam of x-ray radiation emanating from a fixed source and moving the article on a conveyor past said at least one fan beam.

66. The method of claim 64 or 65 wherein the transmitted fan beam is detected by at least one linear array of detectors.

67. The method of claim 57 or claim 65 wherein said ensemble is exposed to x-ray energy to produce dual energy

transmission information related to said target material and employing said information in processing the detected signals for determining said values of the property of said target material without said determinations being significantly influenced by material underlying or overlying said target material.

68. The method of claim 67 wherein said processing includes a comparison of transmission effects through selected subareas of the ensemble to transmission effects of other subareas of the ensemble in the vicinity of selected subareas.

69. A method for inspecting an article capable of being shipped by common carrier to detect a specific given material that may be present within said article in an ensemble in which different materials may overlie or underlie the given material, comprising

exposing regions of the ensemble to x-ray radiation by employing at least one fan beam of x-ray radiation from a fixed source and moving the article on a conveyor past said at least one fan beam,

for each region, detecting the transmitted energy by at least one linear array of detectors and processing the resulting signal to determine the value of a property of an unknown target material present in said region of the ensemble in a manner by which said determination is not significantly influenced by material underlying or overlying said target material,

by computer analysis, comparing the determined value of the property of the target material in said regions to a known value of said property of the given material,

registering locations of regions in the ensemble in which said comparison results in substantial agreement of said value of the property of said target material with the value of the property of said given material,

and in response thereto, in a visual display of the image of said article, highlighting locations in the image based on said comparison agreements, thereby indicating to an operator viewing said display the locations of possible presence of said given material.

Respectfully submitted,

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